ELEC 330 – Electronic Circuits I

Term – Spring 2016 (201601)

Instructor
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Office Hours
Days: TBD
Time: TBD
Location: TBD

Course Objectives
This first course in electronics is designed to give students an introduction to circuits with electronic devices. By the end of this course you will understand how to model and use diodes and transistors; and appreciate why they are everywhere. By using hand analysis you will start to gain an intuitive understanding of electronics. The material covered will give you a solid foundation for later courses such as electronics II, power electronics, and analog VLSI.

Learning Outcomes
- Describe non-linear two-terminal (diodes) and three-terminal (BJTs, FETs) elements
- Name the characteristics of diodes, BJTs, and FETs, their limitations and applications
- Analyze biasing circuits for diodes, BJTs, and FETs
- Design biasing circuits for diodes, BJTs, and FETs
- Identify the configuration of single-stage transistor-based amplifiers
- Solve circuits with diodes and single-stage transistor-based amplifiers
- Carry out circuits’ implementation and evaluation in the Lab including troubleshooting
- Use software tools to simulate circuits
- Demonstrate the ability to work in a group through experiential work carried out in the lab
- Demonstrate communication skills through lab reports documenting team-based experiential work carried out in the lab

Syllabus
- **Diodes**: large and small signal models, rectification, voltage regulation, waveform shaping
- **Bipolar and field-effect transistors**: operation, large and small signal models, biasing
- **Linear application of transistors**: single stage amplifier configurations
- **Nonlinear application of diodes and transistors**: digital logic
### Lectures

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<th>CRN</th>
<th>Days</th>
<th>Time</th>
<th>Location</th>
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<tbody>
<tr>
<td>21116/21117</td>
<td>TWF</td>
<td>11:30-12:20</td>
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### Labs

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<tr>
<td>21116/21117</td>
<td>Mon</td>
<td>13:00-15:50</td>
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### Reference Text

**Title:** Microelectronic Circuits  
**Edition:** 7th  
**Author:** A. Sedra and K. Smith  
**Publisher:** Oxford University Press  
**Year:** 2015  
**ISBN:** 9780199339136

### Required Lab Manual

**Title:** Lab Manual for ELEC 330  
**Author:** Adam Zielinski  
**Year:** 2012  
**Available on CourseSpaces**

### Assessment:

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<th>Due Dates</th>
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### Note:
Failure to complete all laboratory requirements will result in a grade of N being awarded for the course. Failure to write the final examination will result in a grade of N being awarded for the course.

The final grade obtained from the above marking scheme for the purpose of GPA calculation will be based on the percentage-to-grade point conversion table as listed in the current Undergraduate Calendar. Assignment of E grade and supplemental examination for this course will be at the discretion of the Course Instructor. The rules for supplemental examinations can be found in the current Undergraduate Calendar.

[http://web.uvic.ca/calendar/FACS/UnIn/UARe/Grad.html](http://web.uvic.ca/calendar/FACS/UnIn/UARe/Grad.html)

### Note to Students:
Students who have issues with the conduct of the course should discuss them with the instructor first. If these discussions do not resolve the issue, then students should feel free to contact the Chair of the Department by email or the Chair's Secretary to set up an appointment.

**Accommodation of Religious Observance**
[http://web.uvic.ca/calendar/GI/GUPo.html](http://web.uvic.ca/calendar/GI/GUPo.html)
Policy on Inclusivity and Diversity
http://web.uvic.ca/calendar/GI/GUPo.html

Standards of Professional Behaviour
You are advised to read the Faculty of Engineering document Standards for Professional Behaviour, which contains important information regarding conduct in courses, labs, and in the general use of facilities.
https://www.uvic.ca/engineering/assets/docs/professional-behaviour.pdf

Cheating, plagiarism and other forms of academic fraud are taken very seriously by both the University and the Department. You should consult the entry in the current Undergraduate Calendar for the UVic policy on academic integrity.
http://web.uvic.ca/calendar/FACS/UnIn/UARe/PoAcI.html

Course Lecture Notes
Unless otherwise noted, all course materials supplied to students in this course have been prepared by the instructor and are intended for use in this course only. These materials are NOT to be re-circulated digitally, whether by email or by uploading or copying to websites, or to others not enrolled in this course. Violation of this policy may in some cases constitute a breach of academic integrity as defined in the UVic Calendar.